

REMARKS

Reconsideration of the above-identified patent application in view of the remarks following is respectfully requested. Claims 1-18 are pending in the application. Claims 1-18 have been rejected. Applicant hereby cancels claims 17 and 18 with this response. The rejection of claims 1-16 is respectfully traversed.

The current invention is of a method for registration of multiple entities belonging to a specific optical network unit (ONU). In one embodiment, the multiple entity registration method comprises checking by an optical line terminal (OLT) if a registration request message received from the specific ONU belongs to a certain grant, and based on the check result, registering an entity as either a first or as an additional entity of the specific ONU. In another embodiment, the method comprises checking by an OLT of a reserved value of a flags field inside a registration request message, and based on the check result, registering an entity as either a first or as an additional entity of the specific ONU. The knowledge by an OLT that multiple entities belong to a specific ONU is used for grant optimization and packet data flow optimization.

Objections - Drawings

Applicant thanks the Examiner for pointing out the error related to item 711 in the description of FIG. 7. Both figure and the description are amended to correct the error. A corrected Fig. 7 is attached herewith.

§ 112 Rejections

Claims 1, 6, 10, 14 and 17 were under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant accepts the Examiner's determination that these claims represent method claims and has amended them accordingly, thereby removing the reason for 35 U.S.C. 112 rejection.

Claim 14 was further rejected under 35 U.S.C. 112, second paragraph. Examiner's point that bullet "d" is not clear is not understood to Applicant. Bullet "d" represents a fourth step, just as bullets "a", "b" and "c" in the claim represent the other 3 steps.

§ 102 Rejections

Claims 14-16 were rejected as broadly interpreted and explained above and further under 35 U.S.C. 102(e) as being anticipated by Edasawa et al. (US 6,831,981 B2). The Examiner's rejection is respectfully traversed.

The Abstract in Edasawa reads:

In an information transceiver system for transmitting/receiving specific information, an information transmission device transmits a key message in which a specific information cipher key is ciphered with a usual key, and transmits to a destination information reception device a cipher message in which specific information is ciphered with the specific information cipher key. The information reception device deciphers a specific information cipher key included in a key message with a usual key, and deciphers with the specific information cipher key the cipher message following the key message. Also, in the presence of a plurality of destination information reception devices, the information transmission device provides to the information reception devices setting information of broadcast setting information of a unicast, a broadcast, or the like, cipher setting information, vendor setting information, group setting information, or the like.

The Description of Preferred Embodiments in Edasawa starts with:

Firstly, embodiments of an OLT and an ONU in an ATM-PON system to which an information transceiver system according to the present invention is applied will now be described. In the embodiments, the OLT 10 and the ONU 20 shown in FIGS. 16 and 18 respectively correspond to an information transmission device and an information reception device in the present invention.

In the paragraph above, it is made clear by Edasawa that the "information transmission device" is just the OLT, not the ONU. The information transmission device thus cannot "broadly be interpreted to include both ONU and OLT" as stated by the Examiner and used in the rejection reasoning. It is well settled that anticipation requires "identity of invention", *Glaverbel Societe Anonime v. Northlake MktG. & Supply*, U.S.P.Q. 2d 1498 (Fed. Cir. 1995). Each and every element in a claim must be found in a single prior art reference as arranged in the claim, in re. *Marshall*, 198 U.S.P.Q. 344, 346 (C.C.P.A. 1978)); *Lindemann MaschinenfabrickGMBH v. American Hoist and Derrick Co.*, 221, U.S.P.Q. 481, 485. There must be no difference

between what is claimed and what is discussed in the prior art reference, in re. *Kalm*, 154 U.S.P.Q 10, 12 (C.C.P.A 1967)). Applicant respectfully submits that there is absolutely no identity of invention between Edasawa and the present invention, and therefore Edasawa cannot and does not anticipate claims 14-16. Moreover, Edasawa cannot even render claims 14-16 unpatentable.

§ 103 Rejections

Claims 1-5 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sutherland et al (US 2003/0177216 A1) in view of Cunetto et al (US 2003/0031184 A1).

As stated in the MPEP, page 2100-128:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference...must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

And on page 2100-131:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Sutherland discloses an isolation technique for networks such as optical networks in which an ONU is connected to a single client. It is absolutely clear that the ONU is not associated with multiple entities of any sort. Cunetto discloses ATM networks with switches. A switch is a device connecting several entities in the same network. In contrast, an ONU is a user network termination device, connecting between an access network and the user network. There is no equivalence between an ATM switch and a PON ONU. In addition, the ATM protocol does not have any feature equivalent to a "grant" in an Ethernet PON protocol.

With regard to claim 1, Applicant submits that neither Sutherland nor Cunnetto disclose use of grants or anything that can be identified as a grant. The meaning of "grant" is clear in the art and defined specifically in the invention. A "grant" is a transmission opportunity that reflects the ONU state. It can be either a discovery grant for detecting new ONUs or a data grant for normal data transmission. A grant is an explicit command, not a state check and therefore reflects an action, not a condition. There is absolutely no notion of grants or grant types in either Sutherland or Cunnetto. *Mutatis mutandis*, neither Sutherland nor Cunnetto disclose methods that perform the step of "checking, by the OLT, if a registration request message received from the specific ONU belongs to a certain grant". Cunnetto describes registration of multiple entities, but fails to describe a relationship between the entities.

Applicant submits that the broad interpretation by Examiner of a registration request message received from the specific ONU "belonging to a certain grant" as "meeting a certain condition" is misplaced and unreasonable. As neither Sutherland nor Cunnetto deal with grants or even mention grants, and as Sutherland discloses single entity ONUs while Cunnetto discloses multiple entity switches that are essentially different from ONUs as explained, there would be no motivation to combine the two references to obtain a method for registration of multiple entities belonging to a specific ONU that performs a step involving grants. There would certainly be no reason to expect success in obtaining the features recited in claim 1 from such a combination. Therefore, the combination of the two references fails to meet any of the necessary criteria to establish a prima facie case of obviousness and consequently cannot render claim 1 and any claim dependent therefrom unpatentable.

Claims 6-9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer et al (US 6,546,014 B1) in view of Cunnetto et al (US 2003/0031184 A1). The rejection is respectfully traversed.

Kramer discloses a method and system for dynamic bandwidth allocation in an optical access network such as a PON, using an Ethernet protocol. With regard to claim 6, Applicant submits that the broad interpretation by Examiner that "registration of multiple subscribers belonging to a specific switch in an ATM network" as "registration of an entity associated with a registration request as an entity of a specific ONU in a PON" is misplaced and unreasonable. As argued above, there can

be no analogy between ATM switches and ONUs. Therefore, the handling of multiple entities by ATM switches has no bearing whatsoever on handling of multiple entities of an ONU, because the ATM entities are not related, as opposed to the physical relationship between multiple entities belonging to a specific ONU. Applicant submits that neither Kramer nor Cunetto perform the step "based on said checking, deciding, by the OLT, to register an entity associated with the registration request as an entity of said specific ONU selected from the group consisting of a first entity and an additional entity". The combination of Kramer and Cunetto thus fails to teach or suggest all the claim limitations. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the two references or to combine their teachings and reasonably expect to obtain the method recited in claim 6. Therefore, the combination of the two references fails to meet any of the necessary criteria to establish a prima facie case of obviousness and consequently cannot and does not render claim 6 and any claim dependent therefrom unpatentable.

Claims 10-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer et al (US 6,546,014 B1) in view of Kwon et al. (US 2003/0097435 A1) and further in view of Song et al (US 2003/0137975). The rejection is respectfully traversed.

Kwon's invention relates to CATV broadcasting. Kwon provides a system and method for processing message statistics, in which downstream messages and upstream messages flowing through a network controller connected between an IP network and a cable network are generated as a target file in an extensible markup language (XML) format that takes into consideration real data structure, and statistical data result values are stored as the target file through individual elements parsing to see target table values, so that statistical results can be known. It is extremely unreasonable to interpret compilation of messages generated as target files in an XML format as in Kwon with coalescing of current grant content as in the current invention. No one with ordinary skill in the art would reasonably interpret "if said additional grant is found, coalescing said current grant content and said additional grant contents, whereby said coalescing removes the need to add additional optical overhead to said current grant content", as recited in claim 10, with compilation of

messages as in Kwon.. Grants relate to MAC layer device management, while Kwon deals with application layer management. The two are as far as can be from each other in OSI layering.

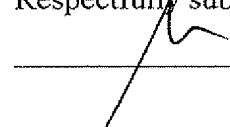
Song's invention discloses Ethernet PON, but similarly fails to disclose coalescing of current grant content and additional grant contents. Song does not leave a laser on as in claim 11, which is a key feature of coalescing. Neither Kramer, now Kwon, nor Song mention the ability to decrease the optical overhead by coalescing and leaving a laser on.

Applicant respectfully submits that neither Kramer nor Kwon nor Song, disclose a key limitation of claim 10. Therefore, the combination of these references cannot and does not render claim 10 and any claim dependent therefrom unpatentable.

Claims 17-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sutherland et al (US 2003/0177216 A1) in view of of Cunetto et al (US 2003/0031184 A1). With the cancellation of these cclaims in this Response, the rejection becomes moot.

In view of the above amendments and remarks it is respectfully submitted that claims 1-16 are now in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,



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